U.S. Patent Application
Serial No. 09/322,353

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(OTT 3038-1)

Clean Copy of Claims, as Amended in the Amendment Corresponding to the Office Action Dated 30 January 2001

1. (Amended) A method of obtaining a cell population enriched for long-term repopulating human hematopoietic stem cells (HSCs), the method comprising isolating hematopoietic cells from a human hematopoietic tissue and separating cells that express KDR on their surface (KDR^+ cells) from cells that do not express KDR on their surface, thereby obtaining a KDR^+ cell population that is enriched for long-term repopulating HSCs.

2. (Amended) The method of claim 1, wherein the tissue is selected from the group consisting of an embryonic tissue, a fetal tissue, and a post-natal tissue.

3. (Amended) The method of claim 1, wherein the tissue is an embryonic tissue selected from the group consisting of yolk sac and liver.

4. (Amended) The method of claim 1, wherein the tissue is a fetal tissue selected from the group consisting of liver, bone marrow, and peripheral blood.

5. (Amended) The method of claim 1, wherein the tissue is a post-natal tissue selected from the group consisting of cord blood, bone marrow, normal peripheral blood, mobilized peripheral blood, a hepatic tissue, and a splenic tissue.

6. (Amended) The method of claim 1, wherein the KDR^+ cells are isolated using a reagent which specifically binds KDR.

7. (Amended) The method of claim 6, wherein the reagent is an antibody.

8. (Amended) The method of claim 7, wherein the antibody is a monoclonal antibody.

8. ~~9.~~ (Amended) The method of claim ~~8~~ 7, wherein the monoclonal antibody is 260.4.

10. (Amended) The method of claim 1, wherein the KDR^+ cells are isolated using a conjugated vascular endothelial growth factor.

10 ~~11~~. (Amended) The method of claim 1, wherein the HSCs are starvation resistant long-term repopulating human HSCs.

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18. (Amended) A method of preparing long-term repopulating human HSCs, the method comprising isolating hematopoietic progenitor cells (HPCs) that express KDR on their surface (KDR^+ HPCs) from a human hematopoietic tissue and from HPCs that do not express KDR on their surface, whereby the isolated KDR^+ HPCs are long-term repopulating HSCs.

12 ~~19~~. (Amended) The method of claim ~~18~~ 11, wherein the tissue is selected from the group consisting of an embryonic tissue, a fetal tissue, and a post-natal tissue.

13 ~~20~~. (Amended) The method of claim ~~18~~ 11, wherein the tissue is an embryonic tissue selected from the group consisting of yolk sac and liver.

14 ~~21~~. (Amended) The method of claim ~~18~~ 11, wherein the tissue is a fetal tissue selected from the group consisting of liver, bone marrow, and peripheral blood.

15 ~~22~~. (Amended) The method of claim ~~18~~ 11, wherein the tissue is a post-natal tissue selected from the group consisting of cord blood, bone marrow, normal peripheral blood, mobilized peripheral blood, a hepatic tissue, and a splenic tissue.

23. (Amended) The method of claim 18, wherein the KDR^+ HPCs are isolated from the tissue using a method selected from the group consisting of isolating cells that express an early marker using an antibody specific for the early marker and isolating cells that do not express a late marker using an antibody specific for the late marker.

25. (Amended) The method of claim 18, wherein the HPCs are isolated using an antibody that is specific for a known lineage (lin) marker.

27. (Amended) The method of claim 18, wherein the HPCs are isolated from the tissue using an antibody which specifically binds CD34 to select $CD34^+$ HPCs.

28. (Amended) The method of claim 27, wherein the KDR^+ HPCs are isolated from the $CD34^+$ HPCs using an antibody which specifically binds KDR.

29. (Amended) The method of claim 28, wherein the antibody which specifically binds KDR is a polyclonal antibody.

30. (Amended) The method of claim 28, wherein the antibody which specifically binds KDR is a monoclonal antibody.

31. (Amended) The method of claim 30, wherein the monoclonal antibody is 260.4.

32. (Amended) The method of claim 31, wherein the KDR^+ HPCs are starvation resistant.

51. (Amended) A method of expanding long-term repopulating human HSCs, the method comprising isolating HSCs that express KDR on their surface (KDR^+ HSCs) from a human hematopoietic tissue and incubating the HSCs with vascular endothelial growth factor to expand the HSCs.

52. (Amended) The method of claim 51, further comprising incubating the population of HSCs with another growth factor.

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53. (Amended) The method of claim 52, wherein the other growth factor is selected from the group consisting of flt3 ligand, kit ligand, thrombopoietin, basic fibroblast growth factor, interleukin 6, interleukin 11, interleukin 3, granulomonocytic colony-stimulatory factor, granulocytic colony-stimulatory factor, monocytic colony-stimulatory factor, erythropoietin, angiopoietin, and hepatocyte growth factor.

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69. (Amended) A method of isolating a stem cell capable of giving rise to at least one of a muscle cell, a hepatic oval cell, a bone cell, a cartilage cell, a fat cell, a tendon cell, and a marrow stroma cell, the method comprising isolating a hematopoietic cell that expresses KDR on its surface from a human hematopoietic tissue, thereby isolating the stem cell.

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71. (New) The method of claim 69, wherein the tissue is selected from the group consisting of an embryonic tissue, a fetal tissue, and a post-natal tissue.

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72. (New) The method of claim 69, wherein the tissue is an embryonic tissue selected from the group consisting of yolk sac and liver.

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73. (New) The method of claim 69, wherein the tissue is a fetal tissue selected from the group consisting of liver, bone marrow, and peripheral blood.

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74. (New) The method of claim 69, wherein the tissue is a post-natal tissue selected from the group consisting of cord blood, bone marrow, normal peripheral blood, mobilized peripheral blood, a hepatic tissue, and a splenic tissue.